

CLAIMS

What is claimed is:

- 5 1. A method of preconcentrating trace analytes by:
 extracting polar and/or non-polar analytes through a sol-
 gel extraction medium.
- 10 2. A method according to claim 1 wherein said extracting
 step is further redefined as feeding a sample through a sol-gel coated inner
 surface of a tube and extracting the analytes from the sample with the sol-gel
 coating.
- 15 3. A method according to claim 2 wherein said feeding step
 is further defined as passing the sample through a capillary tube, the tube
 including a sol-gel coated inner surface.
- 20 4. A method according to claim 2 wherein said feeding step
 is further defined as passing the sample through a sol gel monolithic bed.
- 25 5. A method according to claim 1 wherein the organic
 component of the sol-gel is selected from the group including sol-gel-active
 forms and/or derivatives of poly(ethylene glycol),
 poly(methylphenylsiloxane), poly(dimethyldiphenylsiloxane),
 poly(dimethylsiloxane), poly(methylcyanopropylsiloxane), octadecylsilane,
 octylsilane, crown ethers, cyclodextrins, calixarenes, dendrimers,
 poly(styrene), poly(styrene-divinylbenzene), poly(acrylate), molecularly
 imprinted polymers, etc.
- 30 6. A method according to claim 1 further including the step
 of thermally desorbing the analytes from the sol-gel extraction medium.

7. A method according to claim 1 further including the step of desorbing the analytes from the sol-gel extraction medium.

5 8. A method according to claim 6 further including the step of applying the extracted analytes to a GC capillary column.

9. A method according to claim 7 further including the step of applying the extracted analytes to a liquid phase separation technique.

10 10. A method according to claim 1 further including the steps of preconditioning the sol-gel prior to said extracting step.

11. A method according to claim 8 wherein said preconditioning step is further defined as simultaneously heating and purging an inert gas over the sol-gel.

12. A microextraction method including the steps of microextraction polar and non-polar analytes in a sol-gel extraction medium;

20 desorbing the analytes from the sol-gel and analyzing the extracted, desorbed analytes.